

MATT WALL

Matt Wall is from Huntsville, Alabama and is currently a senior in the College of Science and Mathematics majoring in Biomedical Sciences. He will graduate from Auburn in May 2016 and attend the University of Alabama at Birmingham School of Dentistry starting in July 2016. After receiving his DMD, Matt would like to serve others through medical mission trips and non-profit clinics, as well as working in private practice. Matt conducted his research through the BioTrain Internship program at HudsonAlpha Institute for Biotechnology in Huntsville, Alabama. He spent his time at the Institute working with iCubate, a private medical diagnostics company specializing in infectious disease. The research involved working alongside the iCubate Chemistry Team in development and production of an automated device designed for rapid preparation, amplification and detection of infectious disease.



HudsonAlpha BioTrain Internship Program & iCubate Primer Design, Testing and Analysis

The BioTrain Internship program at HudsonAlpha Institute for Biotechnology is designed for high school, undergraduate or graduate students interested in possible careers in areas such as research, marketing or business. Interns serving in non-profit research labs operated by the Institute and those working with private companies gain unique experience and insight into the daily workings of a highly successful research environment.

According to the American Association of Clinical Chemists, the overall turnaround time for diagnosing infectious disease can often be upwards of 48 hours or more, depending on the organism causing the infection.¹ In some cases, especially those of nosocomial infections (infections occurring in a healthcare environment), this lengthy turnaround period has serious consequences. The lack of a firm diagnosis for approximately two days and resulting delay in treatment can often lead to serious, life-threatening health complications or even result in death. What if it were possible to shorten this diagnostic time by up to 85%? How much faster could patients be on the road to recovery? How many lives could be spared? These possibilities served as inspiration for iCubate in the goal of designing, testing and producing a device specialized in turning a single blood sample into a detailed diagnostic report, without the threat of contamination, in approximately 5 hours. The role of the iCubate Chemistry Team consisted of testing the equipment designed by company engineers, synchronizing the system with the computer-based diagnosis software and developing different detection panels for various classes of organisms. Successful detection of an organism on the panels required in-depth design, testing and analysis of a primer set with highly selective parameters that would work in replicating the organism's genetic information.

¹ Rollins, Genna. "The Infectious Disease Diagnostic Revolution."
AACC.org. N.p., 1 May 2014. Web. 20 Feb. 2016.

